

RECEIVED

JUL 10 2002

TECH CENTER 1600/2900



FORM PTO-1449

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Attorney Docket No.: : REG 780D

USSN : 10/076,840

Applicant : Murphy, et al.

Date Filed : February 15, 2002

For : METHODS OF MODIFYING
EUKARYOTIC CELLS

Examiner : Not Yet Known

Group Art Unit : Not Yet Known

June 17, 2002

U.S. PATENT DOCUMENTS

Examiner Initials	Patent Number	Patent Date	Name	Class/ Subclass	Filing Date
<u>INT</u>	<u>*5,789,215</u>	<u>08/04/98</u>	<u>Berns, et al.</u>	<u>—</u>	<u>—</u>
<u>INT</u>	<u>*5,436,149</u>	<u>07/25/95</u>	<u>Barnes, W.</u>	<u>—</u>	<u>—</u>

FOREIGN PATENT DOCUMENTS

Examiner Initials	Document Number	Date	Country	Class/ Subclass	Translation Yes No
<u>MA</u>	<u>WO94/02602</u>	<u>02/03/94</u>	<u>PCT</u>	<u>C12N 15/00</u>	<u>— —</u>

ther

10-15-04

OTHER DOCUMENTS

Examiner
Initials

TNT

*NATURE, Vol. 317, 1985, Smithies, O., et al., "Insertion of DNA sequences into the human chromosomal β -globin locus by homologous recombination," pp. 230-234.

*CELL, Vol. 51, 1987, Thomas, K.R., and Capecchi, M.R., "Site-Directed Mutagenesis by Gene Targeting in Mouse Embryo-Derived Stem Cells," pp. 503-512.

*PROC. NATL. ACAD. SCI. USA, Vol. 86, 1989, Koller, B.H., et al., "Germ-line transmission of a planned alteration made in a hypoxanthine phosphoribosyltransferase gene by homologous recombination in embryonic stem cells," pp. 8927-8931.

*SCIENCE, Vol. 254, 1991, Kuhn, R., et al., "Generation and Analysis of Interleukin-4 Deficient Mice," pp. 707-710

*NATURE, Vol. 346, 1990, Thomas, K.R., and Capecchi, M.R., "Targeted disruption of the murine *int-1* proto-oncogene resulting in severe abnormalities in midbrain and cerebellar development," pp. 847-850.

TNT

*SCIENCE, Vol. 246, 1989, Schwartzberg, P.L., et al., "Germ-line Transmission of *c-abl* Mutation produced by Targeted Gene Disruption in ES Cells," pp. 799-803.

Chavira

10-15-04

TNT

*NATURE, Vol. 330, 1987, Doetschman, T., et al., "Targetted correction of a mutant HPRT gene in mouse embryonic stem cells," pp. 576-578.

*CELL, Vol. 56, 1989, Thompson, S., et al., "Germ Line Transmission and Expression of a Corrected HPRT Gene Produced by Gene Targeting in Embryonic stem Cells," pp. 313-321.

*NATURE, Vol. 345, 1990, DeChiara, T.M., et al., "A growth-deficiency phenotype in heterozygous mice carrying an insulin-like growth factor II gene disrupted by targeting," pp. 78-80.

*NATURE, Vol. 369, 1994, Cheng, S., et al., "Long PCR," pp. 684-685.

*PCR METHODS AND APPLICATIONS, 1994, Foord, O.S., and Rose, E.A., "Long-distance PCR," pp. 3:S149-S161.

*NUCLEIC ACIDS RESEARCH, Vol. 20 No. 3, 1992, Ponce, M.R., and Micol, J.L., "PCR amplification of long DNA fragments," p.623.

TNT

*GENE TARGETING-A PRACTICAL APPROACH, 2nd Ed., 2000, Edited by Joyner, A.L., Hasty, P. et al., Chapter 1 "Gene targeting, principles, and practice in mammalian cells," pp. 1-35.

thane

10-15-04

TNT

*MOLECULAR AND CELLULAR BIOLOGY, Vol. 12 No. 8,
1992, Deng, C., and Capecchi, M.R., "Reexamination of Gene
Targeting Frequency as a Function of the Extent of Homolgy
between the Targeting Vector and the Target Locus," pp. 3365
-3371.

*NATURE GENETICS, Vol. 20, 1998, Zhang, Y., et al., "A new
logic for DNA engineering using recombination in
Escherichia coli, " pp. 123-128.

*NUCLEIC ACIDS RESEARCH, Vol. 27, 1999, Angrand, P., et
al, "Simplified generation of targeting constructs using ET
recombination," pp. 16(e).

*NUCLEIC ACIDS RESEARCH, Vol. 27, 1999, Muyrers, J.P., et
al., "Rapid modification of bacterial artificial chromosomes by
ET-recombination," pp. 1555-1557.

*GENE THERAPY, Vol. 6, 1999, Narayanan, K. et al., "Efficient
and precise engineering of a 200kb β -globin human/bacterial
artificial chromosome in *E. coli* DH10B using an inducible
homologous recombination system," pp. 442-447.

*GENOMICS, Vol. 64, 1999, Hill, F., et al., "BAC Trimming:
Minimizing Clone Overlaps," pp. 111-113.

TNT

*NATURE BIOTECHNOLOGY, Vol. 15, 1997, Yang, X, et al.,
"Homologous recombination based modification in
Escherichia coli and germline transmission in transgenic
mice of a bacterial artificial chromosome," pp. 859-865.

tha

10-15-84

TMT

*PROC. NATL. ACAD. SCI. USA, Vol. 97, 2000, Yu, D., et al.,
"An efficient recombination system for chromosome
engineering in *Escherichia coli*," pp. 5978-5983.

*PROC. NATL. ACAD. SCI. USA, Vol. 91, 1994, Hall, S. D, and
Kolodner, R.D., "Homologous pairing and strand exchange
promoted by the *Escherichia coli* RecT protein," pp. 3205-3209.

*GENE, Vol. 138, 1994, Kusano, K., et al., "Involvement of
RecE and RecT annealing protein in DNA double-stranded
break repair by homologous recombination," pp. 17-25.

*SCIENCE, Vol. 277, 1997, Kovall, R, and Matthews, B.W.,
"Toroidal Structure of λ -Exonuclease," pp. 1824-1827.

*COLD SPRINGS HARB SYMP QUANT BIOL, Vol. 49, 1984,
Clark, A.J., et al., "Genes of the RecE and RecF Pathways of
Conjugational Recombination in *Escherichia coli*," pp. 453-462.

*J BIOL CHEM, Vol. 273, 1998, Noirot, P., and Kolodner, R.D.,
"DNA Strand Invasion Promoted by *Escherichia coli* RecT
Protein," pp. 12274-80.

*J MOL BIOL, Vol. 254, 1995, Thresher, et al., "Electron
Microscopic Visualization of RecT Protein and its Complexes with
DNA," pp. 364-371.

TMT

*MOLECULAR MICROBIOLOGY, Vol. 11, 1994, Kolodner, et
al., "Homologous pairing proteins encoded by the *Escherichia*
coli recE and recT genes," p. 23-30.

tha

10-15-04

th

*JOURNAL OF BACTERIOLOGY, Vol. 175, 1993, Hall, S.D., et al., "Identification and Characterization of the *Escherichia coli* RecT Protein, a Protein Encoded by the *recE* Region That Promotes Renaturation of Homologous Single-Stranded DNA," pp. 277-287.

*JOURNAL OF BACTERIOLOGY, Vol. 173, 1991, Murphy, K.C., " λ Gam Protein Inhibits the Helicase and χ -Stimulated Recombination Activities of *Escherichia coli* RecBCD Enzyme," pp. 5808-5821.

*JOURNAL OF BACTERIOLOGY, Vol. 170, 1988, Poteete, A.R., and Fenton, A.C., "Modulation of *Escherichia coli* RecBCD Activity by the Bacteriophage λ Gam and P22 Abc Functions," pp. 2012-2021.

*ANNU REV GENET, Vol. 28, 1994, Myers, R.S., and Stahl, F.W., " χ AND THE RecBC D ENZYMEN OF *ESCHERICHIA COLI*," pp. 49-70.

*THE JOURNAL OF BIOLOGICAL CHEMISTRY, Vol. 259, 1984, Abremski K., and Hoess, R., "Bacteriophage P1 Site-specific Recombination-PURIFICATION AND PROPERTIES OF THE Cre RECOMBINASE PROTEIN," pp. 1509-1514.

INT

*CELL, Vol. 40, 1985, Andrews, B.J., et al., "The FLP Recombinase of the 2 μ Circle DNA of Yeast: Interaction with Its Target Sequences," p. 795-803.

th

15-15-84

TNT

*COLD SPRING HARB SYMP QUANT BIOL, Vol. 49, Meyer-Leon, L., et al., "Site-specific Genetic Recombination Promoted by the FLP Protein of the Yeast 2-micron Plasmid *In Vitro*," pp. 797-804.

*PROC NATL ACAD SCI USA, Vol. 80, 1983, Cox, M.M., "The FLP protein of the yeast 2- μ m plasmid: Expression of a eukaryotic genetic recombination system in *Escherichia coli*," pp. 4223-4227.

*CURR OPIN BIOTECHNOL, Vol. 9, 1998, Lie, Y.S., and Petropoulos, C.J., "Advances in quantitative PCR technology: 5' nuclease assays," pp. 43-48.

*EUR J CHEM, Vol. 6, 2000, Tan, W., et al., "Molecular Beacons: A Novel DNA Probe for Nucleic Acid and Protein," pp. 1107-1111.

*HUM GENET, Vol. 96, 1995, Laan, M., et al., "Solid-phase minisequencing confirmed by FISH analysis in determination of gene copy number," pp. 275-280.

*TRENDS IN GENETICS, Vol. 13, 1997, Forozan, F., et al., "Genome screening by comparative genomic hybridization," pp. 405-409.

TNT

*JOURNAL OF CELLULAR BIOCHEMISTRY, Vol. 17G, 1993, Thompson, C.T., and Gray, J.W., "Cytogenetic Profiling Using Fluorescence *In Situ* Hybridization (FISH) and Comparative Genomic Hybridization (CGH)," pp. 139-143.

Chan

MM

*AMERICAN JOURNAL OF PATHOLOGY, Vol. 145, 1994,
Houldsworth, J, and Chaganti, R.S.K., "Comparative
Genomic Hybridization: An Overview," p. 1253-1260.

*NATURE GENETICS, Vol. 19, 1998, Lizardi, P.M., et al.,
"Mutation detection and single-molecule counting using
isothermal rolling-circle amplification," pp. 225-232.

*NUCLEIC ACIDS RESEARCH, Vol. 27, 1999, Mitra, R.D., and
Church, G.M., "In situ localized amplification and contact
replication of many individual DNA molecules," pp. e34.

NUCLEIC ACIDS RESEARCH, Vol. 25, No. 14, 1997, Bethke, Bruce
And Sauer, Brian, "Segmental genomic replacement by Cre-
Mediated recombination: genotoxic stress activation of the p53
promoter in single-copy transformants", pp. 2828-2834.

MOLECULAR IMMUNOLOGY, Vol. 33, No. 17/18, 1996,
Shigeharu Fujieda, et al., "Direct Evidence That $\gamma 1$ And $\gamma 3$
Switching In Human B Cells Is Interleukin-10 Dependent", pp.
1335-1343.

EUR. J. IMMUNOL., Vol. 28, 1998, Brian B. Haines and Peter H.
Brodeur, "Accessibility changes across the mouse Igh-V locus
during B cell development", pp. 4228-4235

TNT

NATURE GENETICS, Vol. 20, 1998, Herault, Yann, et al.,
"Engineering chromosomes in mice through targeted meiotic
recombination (TAMERE)", pp. 381-384.

thra

10-15-04

INT

NUCLEIC ACIDS RESEARCH, Vol. 14, No. 5, 1986, Hoess, Ronald H., et al., "The role of the *loxP* spacer region in PI site-specific recombination", pp. 2287-2300.

EUR. J. IMMUNOL, Vol. 6, 1976, G. Kohler and C Milstein, "Derivation of specific antibody-producing tissue culture and tumor lines by cell fusion", pp. 511-519.

ANALYTICAL BIOCHEMISTRY, Vol. 290, 2001, Andreas F. Kolb, "Selection-Marker-Free Modification of the Murine β -Casein Gene Using a *lox2722* Site", pp. 260-271.

CURRENT OPINION IN BIOTECHNOLOGY, Vol. 9, 1998, Yolanda S. Lie and Christos J. Petropoulos, "Advances in quantitative PCR technology: 5' nuclease assays", pp. 43-48.

THE JOURNAL OF IMMUNOLOGY, 1998, Ong, Jane, et al., "3' IgH Enhancer Elements Shift Synergistic Interactions During B Cell Development", pp. 4896-4903.

EUR. J. IMMUNOL., Vol. 30, 2000, Pan, Qiang, et al., "Regulation of the promoter for human immunoglobulin $\gamma 3$ germ-line transcription and its interaction with the 3' α enhancer", pp. 1019-1029.

INT

MOLECULAR AND CELLULAR BIOLOGY, Vol. 19, No. 10, October 1999, Ronai, Diana, et al., "Variegated Expression of the Endogenous Immunoglobulin Heavy-Chain Gene in the Absence of the Intronic Locus Control Region", pp. 7031-7040.

ther

10-15-04

PNM

PNAS, Vol. 97, No. 2, January 18, 2000, Tomizuka, Kazuma, et al., "Double trans-chromosomal mice: Maintenance of two individual human chromosome fragments containing Ig heavy and K loci and expression of fully human antibodies", pp. 722-727.

PNM

FACULTY OF BIOLOGY, University of Konstanz, Germany, 1999, Willers, Jörg, et al., "Apparent Trans-Chromosomal Antibody Class Switch in Mice Bearing an Igh^α μ-chain Transgene on an Igh^b Genetic Background", pp. 150-164.

PNM

NATURE BIOTECHNOLOGY, Vol. 15, September 1997, Yang, Xiangdong W., et al., "Homologous recombination based modification in *Escherichia coli* and germline transmission in transgenic mice of a bacterial artificial chromosome", (sic) pp. 859-865.

* Items with an asterisk were submitted in parent applicatin USSN 09/732,234 on June 18, 2001.

therin

10-15-04

REG 780D
USSN : 10/076,840
PTO 1449 Form
Murphy et al.
Page 2



OTHER DOCUMENTS

Examiner
Initials

TNT

Jessen, et al., Proc. Natl. Acad. Sci. USA, Vol. 95, pp. 5121-5126, (1998).

EXAMINER
CONSIDERED

[Signature]

DATE

10-15/04

EXAMINER:

Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Respectfully submitted,

By:

Valeta Gregg
Valeta Gregg
Reg. No. 35,127
Attorneys for Applicant
Patent Agent for Applicant
Regeneron Pharmaceuticals, Inc.
777 Old Saw Mill River Road
Tarrytown, New York 10591
(914) 345-7400



FORM PTO-1449

Att. Docket No. REG 780D

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Att. Docket No. : REG 780D
Serial No. : 10/076,840
Applicant: : Murphy et al.
Date Filed : February 15, 2002
For : METHODS OF MODIFYING
EUKARYOTIC CELLS
Examiner : Not Yet Known
Group Art Unit : Not Yet Known

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

U.S. PATENT DOCUMENTS

<u>Examiner Initials</u>	<u>Patent Number</u>	<u>Patent Date</u>	<u>Name</u>	<u>Class/ Subclass</u>	<u>Filing Date</u>
_____	_____	_____	_____	_____	_____

FOREIGN PATENT DOCUMENTS

<u>Examiner Initials</u>	<u>Document Number</u>	<u>Date</u>	<u>Country</u>	<u>Class/ Subclass</u>	<u>Translation Yes No</u>
_____	_____	_____	_____	_____	_____